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Find the *Newport ILS150CC* at our website: ***Click HERE***

High-Performance Mid-Range Travel Linear Stages



ILS SERIES

The ILS Series is a robust line of sub-micron resolution linear stages, constructed with a light, stiff aluminum body and reliable components capable of high-duty cycle applications.

- Stiff, FEM optimized extruded aluminum body prevents thermal bending effects
- Preloaded, backlash-free ballscrew drive allows rapid movements with short step and settling time
- Precision recirculating ball bearing slides provide accurate linear motion without ball cage migration
- 50–250 mm of travel
- Ideal for extended use in light industrial applications
- Plug and Play - ESP compatible

Backlash-free Ballscrew

ILS stages include a preloaded, backlash-free ball screw, which provides smooth, rapid motion with short step and settling time. The screw profile is designed to reduce heating effects, extending the life of the stage.

Recirculating Ball Bearing Slides

The recirculating ball bearing slides provide excellent payload capabilities and longer life with accurate linear trajectory. It mitigates the issue of ball cage migration, which is typically found on linear ball bearings or crossed roller bearings.

FEM-optimized Aluminum Body

The optimized aluminum body allows for extreme stiffness and minimizes bi-metal bending without compromising weight. The rigid body reduces deflection under load.

Integrated Encoder

A 4000 pts/rev. encoder is mounted directly on the screw in order to prevent screw/motor coupling errors consequently boosting stage motion accuracy. The HA version features an integrated linear scale with 0.3 µm MIM.

Need Higher Accuracy?

For critical positioning applications, Newport offers micropositioning calibration services. We will create, implement and verify an electronic compensation process to improve the absolute position accuracy of select ILS-HA Series stages when commanded by our XPS advanced motion control system. Compensation is performed at 20.0 °C, ±0.2 °C, for linear and non-linear errors, ensuring accuracy of up to 1 µm +1 µm/100 mm over center 80% of travel. A certificate of calibration per Newport Metrology Procedure A167 and measured error maps are provided.

DESIGN DETAILS

Base Material	Extruded Aluminum
Bearings	Double-row recirculating ball bearings
Drive Mechanism	Backlash-free ball screw
Drive Screw Pitch (mm)	2
Feedback	CC, CCL, PP: Screw mounted rotary encoder, 4,000 cts/rev, index pulse HA: Linear steel scale, 20 µm signal period, 0.1 µm resolution
Limit Switches	Optical
Origin	Optical, at center of travel, including mechanical zero signal
Cable	3 m long cable included

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ILS SERIES

Metrology Report Included at No Additional Cost

Newport guarantees specification values which are measured and recorded following ASME B5.57 and ISO 230-2 standards. The typical performance values are two times better than the guaranteed specifications.

Other Features

A rigid top cover prevents damage to the drive train and protects it from dust and debris. ILS Series stages also feature an origin located at the center of travel for repeatable initialization, limit switches to prevent over travel, and elastomeric end-of-run dampers for smooth emergency braking.

SPECIFICATIONS

		PP, CC, CCL [1]	HA
Travel Range (mm)		50, 100, 150, 200 and 250	
Minimum Incremental Motion (µm)		1.0	0.3
Uni-directional Repeatability, Typical (Guaranteed) (µm)		1.0	0.4
Bi-directional Repeatability, Typical (Guaranteed) [2] (µm)	ILS50:	±0.40 (±1.0)	±0.10 (±0.35)
	ILS100:	±0.40 (±1.0)	±0.10 (±0.35)
	ILS150:	±0.45 (±1.0)	±0.15 (±0.35)
	ILS200:	±0.45 (±1.0)	±0.15 (±0.35)
	ILS250:	±0.60 (±1.0)	±0.15 (±0.35)
Accuracy CC, PP & CCL, Typical (Guaranteed) [2] (µm)	ILS50:	±0.6 (±1.5)	±0.3 (±2.0)
	ILS100:	±0.8 (±2.0)	±0.6 (±1.5)
	ILS150:	±1.5 (±2.5)	±1.2 (±2.0)
	ILS200:	±1.2 (±3.7)	±0.8 (±3.0)
	ILS250:	±1.7 (±5.0)	±1.5 (±3.75)
Maximum Speed (mm/s)	PP, CCL: 50 CC: 100	100	
Pitch, Typical (Guaranteed) [2][3] (µrad)	ILS50:	±15 (±25)	±17 (±25)
	ILS100:	±20 (±100)	±25 (±50)
	ILS150:	±37 (±75)	±50 (±75)
	ILS200:	±37 (±100)	±35 (±100)
	ILS250:	±42 (±125)	±45 (±125)
Yaw, Typical (Guaranteed) [2][3] (µrad)	ILS50:	±12 (±25)	±7 (±25)
	ILS100:	±17 (±37)	±17 (±37)
	ILS150:	±20 (±65)	±25 (±65)
	ILS200:	±25 (±80)	±25 (±80)
	ILS250:	±25 (±95)	±30 (±95)
MTBF (h)		20,000	

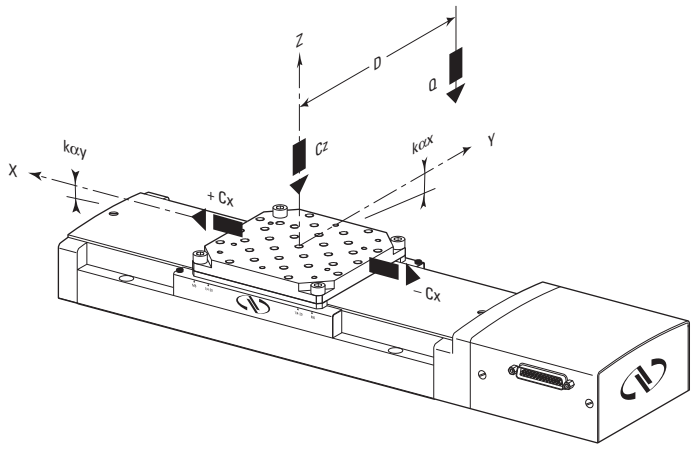
1) ILS-CCL used with the SMC100CC controller only.

2) Shown are peak to peak, guaranteed specifications or ±half the value as sometimes shown. For the definition of typical specifications which are about 2X better than the guaranteed values, visit www.newport.com for the Motion Control Metrology Primer.

3) To obtain arcsec units, divide µrad value by 4.8.

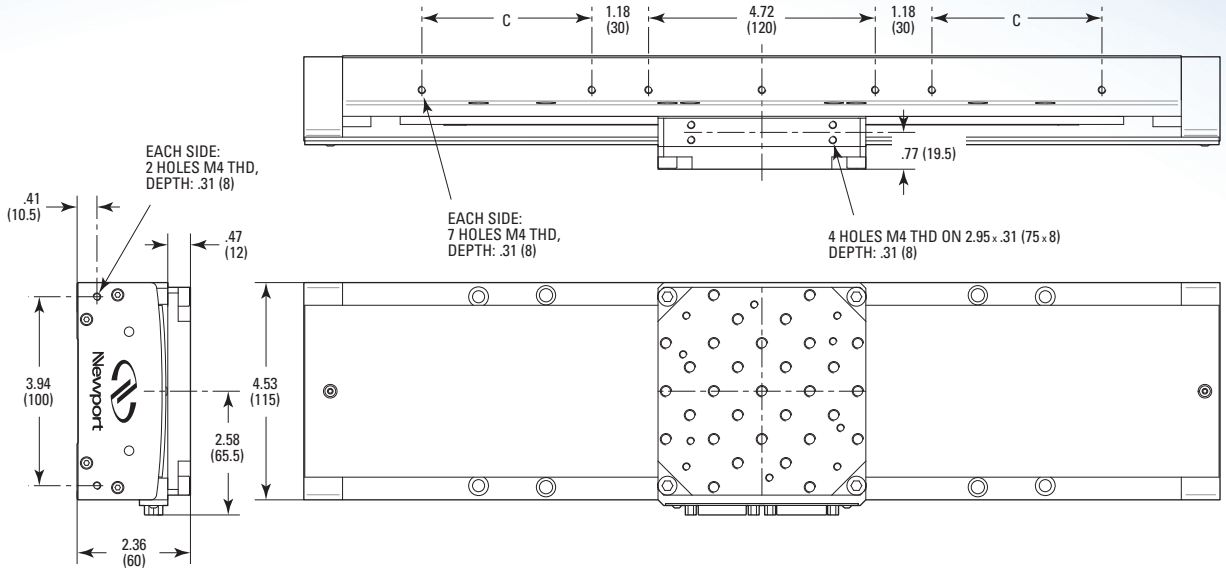
LOAD CHARACTERISTICS AND STIFFNESS

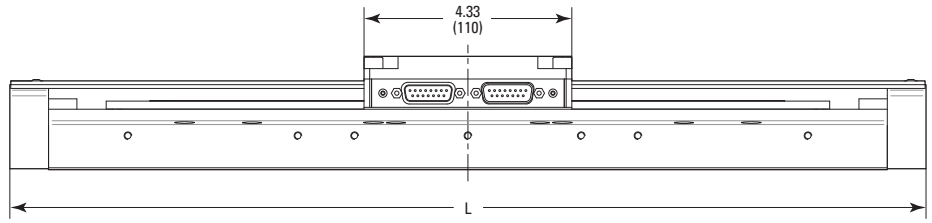
Cz,	Normal centered load capacity	250 N
-Cx, +Cx,	Axial load capacity	<40 N
Kαx,	Compliance in roll	15 µrad/Nm
Kαy,	Compliance in pitch	10 µrad/Nm
Kαz,	Compliance in yaw	10 µrad/Nm
Q,	Off-center load (N)	Q ≤Cz ÷ (1 + D/60)
	Where D = Cantilever distance (mm)	



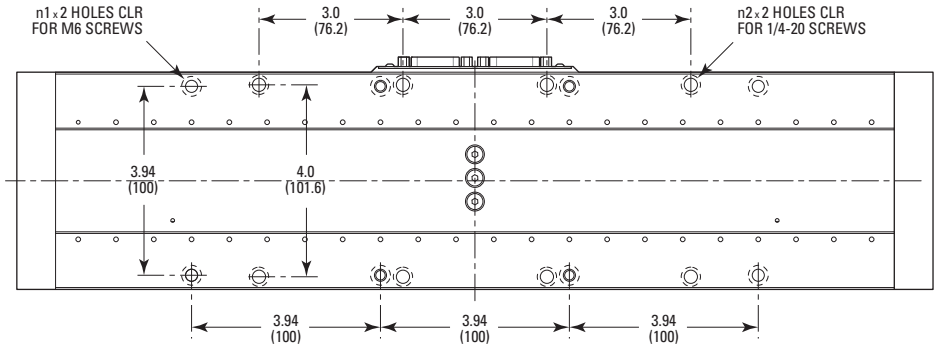
DIMENSIONS

(M-)ILS-LM Stages





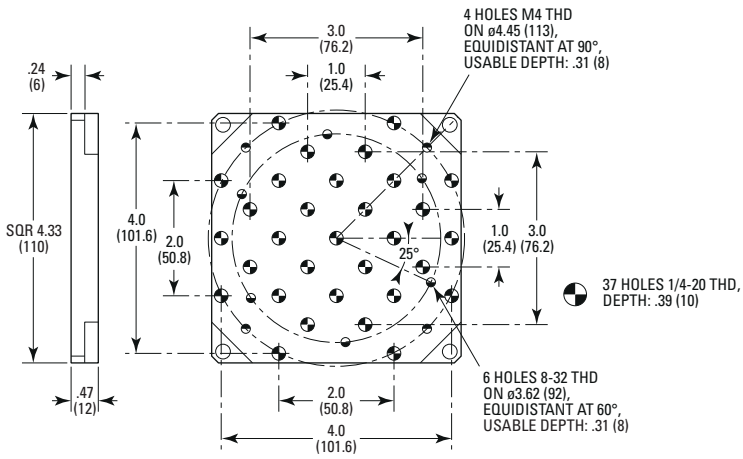
MODEL SHOWN: ILS300LM
DIMENSIONS IN INCHES (AND MILLIMETERS)



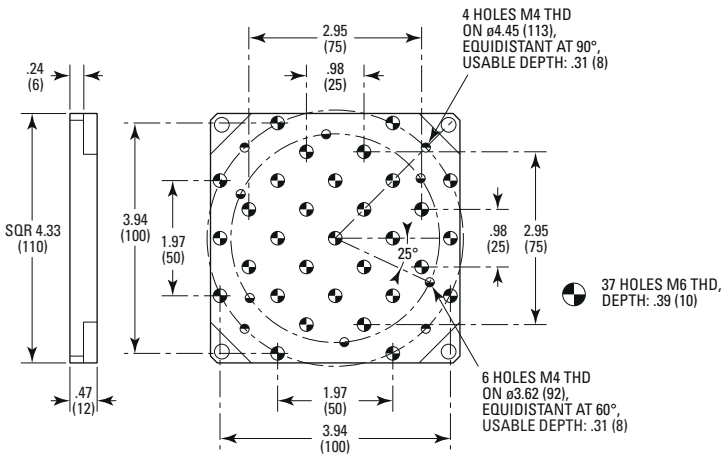
MODEL (METRIC)	n1	n2	C	TRAVEL	L
(M-)ILS100LM	2	2	1.08 (27.5)	3.94 (100)	11.22 (285)
(M-)ILS200LM	4	4	2.76 (70)	7.87 (200)	15.16 (385)
(M-)ILS300LM	4	4	3.54 (90)	11.8 (300)	19.09 (485)

Top Plate Interfaces

MODEL SHOWN: ILS & ILS-LM INTERFACE
DIMENSIONS IN INCHES (AND MILLIMETERS)



MODEL SHOWN: M-ILS & M-ILS-LM INTERFACE
DIMENSIONS IN INCHES (AND MILLIMETERS)



RECOMMENDED CONTROLLERS/DRIVERS

Model	Description
XPS-D	1- to 8-axis universal high-performance motion controller/driver
XPS-DRV11	Universal digital driver card for stepper, DC, brushless and direct motors
XPS-RL	1- to 4-axis universal high-performance motion controller/driver
XPS-DRV01	PWM drive module for DC brush and stepper motors, 3 A/48 V max.
XPS-DRV03	High performance PWM drive module for DC motors, 5 A/48 V max.
ESP301	1- to 3-axis motion controller/driver
SMC100CC	Single-axis DC motor controller/driver
SMC100PP	Single-axis stepper motor controller/driver

ORDERING INFORMATION

Model	Series	Travel (mm)	Drive
M-	ILS	50, 100, 150, 200, 250	CC, CCL, HA, PP

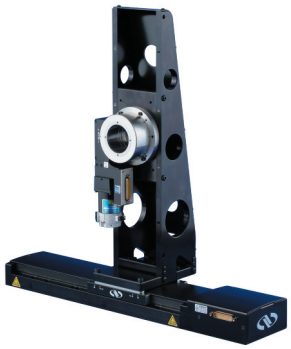
Example:
*The **ILS150HA** is an ILS stage with 150 mm travel, a DC motor drive with linear encoder, in English version.*

M-: For metric version
CC: DC motor
CCL: DC motor for SMC100CC controller
HA: DC motor with linear encoder
PP: Stepper motor

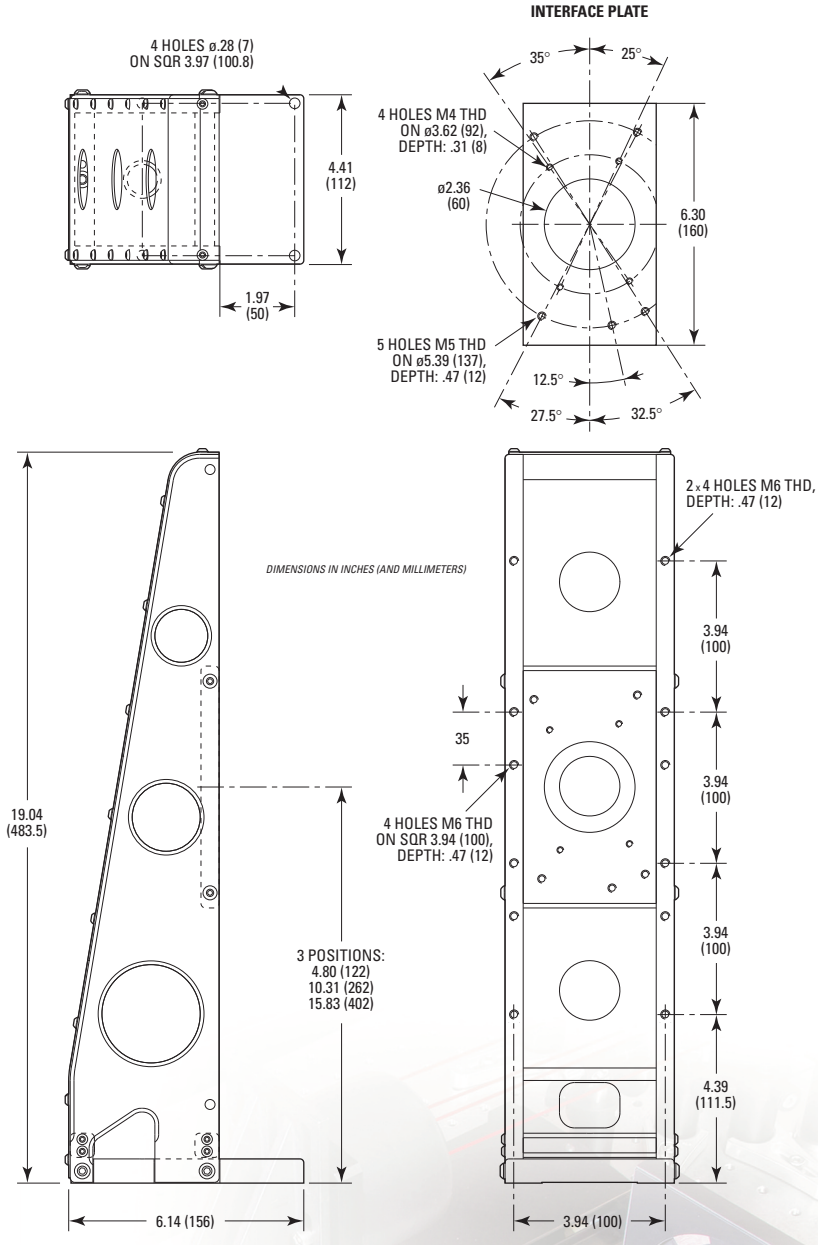
ACCESSORY: EQ120 BRACKET



Two IMS stages, one ILS stage, and one EQ120 bracket in an XYZ configuration.



An RVS80 mounted in a vertical configuration with an EQ120 bracket to an ILS stage.



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